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## Study unravels new mechanism by which cannabinoids suppress immune function; labels them 'double-edged sword'

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April 2, 2011

Compounds found in the cannabis plant can trigger a suppression of the body's immune functions, creating greater susceptibility to certain types of cancers and infections, according to research led by the eminent immunologist Dr. Prakash Nagarkatti at the University of South Carolina School of Medicine.

The findings also point to the possibility of using such compounds, currently used legally in some places for medical purposes such as pain relief - as a treatment for a large number of additional clinical disorders that benefit from a suppressed immune response, including rheumatoid arthritis and multiple sclerosis.

The research, published in the *European Journal of Immunology*, focuses on a group of cannabinoid compounds, including THC (delta-9 tetrahydrocannabinol). (1)

"Cannabis is one of the most widely used drugs of abuse worldwide, and it is already believed to suppress immune functions making the user more susceptible to infections and some types of cancer," Dr. Nagarkatti said.

**We believe the key to this suppression is a unique type of immune cell, which has only recently been identified by immunologists - called myeloid-derived suppressor cells, MDSCs.**

While most immune cells fight against infections and cancers to protect the host, MDSCs actively suppress the immune system.

The presence of these cells is known to increase in cancer patients,

And it is believed that MDSCs may suppress the immune system against cancer therapy, actually promoting cancer growth.

Dr. Nagarkatti's team demonstrated that cannabinoids can trigger a massive number of MDSCs through activation of cannabinoid receptors.

Our research for the first time demonstrates that marijuana cannabinoids can activate a unique type of immune cell, and the job of these cells is to suppress the immune response," he says.

**Suppressing the immune response is important for treating a large number of ailments, including arthritis, multiple sclerosis, lupus and allergies.**

In these, your immune system gets activated and starts destroying your own cells and tissues. You have to try to suppress your immune response," Dr. Nagarkatti explains. In such instances, there is a need to develop drugs that can suppress the immune response.

Marijuana cannabinoids present us with a double-edged sword," he adds. On one hand, due to their immunosuppressive nature, they can cause increased susceptibility to cancer and infections. However, further research of these compounds could provide opportunities to treat a large number of clinical disorders where suppressing the immune response is actually beneficial.

The research was funded by the National Institutes of Health's National Institute on Drug Abuse. Co-authors were Dr. Venkatesh Hegde and Dr. Mitzi Nagarkatti.

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# American Society of Addiction Medicine Rejects Use of 'Medical Marijuana,' Citing Dangers and Failure To Meet Standards of Patient Care

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*Cannabis Should Be Subjected to the Standards of Federal Regulators Rather than to Voters' Whims at the Ballot Box*

CHEVY CHASE, Md., March 23, 2011 /PRNewswire-USNewswire/ -- Citing the dangers of marijuana, the lack of clinical research on a controlled substance with a high potential for abuse, and the physician's oath to "first, do no harm," the American Society of Addiction Medicine (ASAM) today issued a white paper recommending a halt to using the weed as a medicine in states where it has been declared legal.

The organization—considered the nation's leading professional society of physicians involved in addiction prevention, treatment, research, education, and public policy—supports the need for federal regulatory standards for drug approval and distribution, and discourages state interference in the federal medication-approval process.

"Our policy statement is a careful attempt to put marijuana into proper perspective," said Louis E. Baxter, Sr., MD, FASAM, President and Board Chair, American Society of Addiction Medicine. "We do not recognize this as a 'medication,' having not gone through an official FDA-approval process. As experts in addiction medicine, we reject having its use as such foisted upon us to effectively regulate a non-FDA-approved substance to administer as medicine. We also advise physicians against recommending it, as it is, and possibly forsaking the Hippocratic Oath of 'first do no harm.'"

Currently, laws in 15 states and the District of Columbia allow the use of so-called "medical marijuana." This has resulted in a patchwork system that lacks the patient safeguards normally associated with the appropriate clinical use of psychoactive substances, ASAM policy asserts.

"The informal network puts physicians in an untenable position as gatekeepers to a controlled substance still deemed illicit by the federal government," said Dr. Andrea G. Barthwell, former President of ASAM and a principal advisor to President George W. Bush on policies aimed at reducing the demand for illicit drugs. "We urge physicians to reject this role, and remind those who recommend cannabis that they could fail to meet their professional obligations to patients and possibly have their license revoked."

She added: "The safety and advisability of any prescriptive medicine should depend on years of careful scientific scrutiny, not whims at the ballot box by individuals who lack the qualifications to make such decisions. Allowing cannabis to circumvent FDA approval sets a dangerous precedent and puts us on a slippery slope."

According to her ASAM colleague, Robert L. DuPont, MD, who helped develop the society's public policy: "Marijuana is not the harmless herb many believe it is, but a powerful drug with a variety of effects. It can produce adverse mental, emotional, behavioral and physical changes, and contrary to popular notions, it is addictive. Of the 7.1 million Americans age 12 and older with a substance use disorder related to an illicit drug in 2009, 4.3 million or 60.5 percent were dependent on or abused marijuana. Marijuana was by far the most commonly reported drug of abuse among this population, and nearly equal to all other illegal drugs combined." Dr. DuPont was the first Director of the National Institute on Drug Abuse and the second White House Drug Chief, in the Nixon and Ford Administrations.

Marijuana is generally smoked, and that is dangerous, Dr. DuPont said. Its smoke contains many of components of tobacco smoke, and smoking marijuana can deposit up to four times the amount of tar in the lungs as cigarettes, in part because marijuana smokers inhale deeply and hold their breath.

"We are accumulating knowledge about the body's cannabinoid receptor system. ASAM recommends developing ways to manipulate the system with standardized preparations or single molecules to usher in a new era of medical treatments," he said. As yet, however, "medical marijuana" lacks quality control and standardization, can be contaminated with pesticides and microbes, and does not assure patients a reliable and reproducible dose.

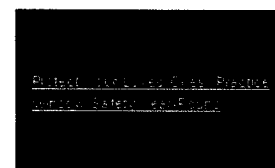
Despite this, cannabis dispensaries are proliferating in many states without regulation, distributing products about which little is known. "If physicians were treating patients with other untested substances, there would be a public outcry," Dr. Barthwell said.

"Without a foundation of rigorous data developed in proper clinical trials and published in peer reviewed journals, no cannabis product can gain entrance into the physician's armamentarium and thereby become available to patients as a legitimate option among various treatment choices. And ironically, continued legalized usage undermines any reason to put cannabis-based products through the FDA approval process."

Marijuana made headlines when Californians voted to legalize its use for medical treatment in 1996. Fourteen more states and the District of Columbia have followed suit. As a result, thousands of people, including youths, have unfettered access to the drug.

Marijuana is the nation's most commonly used illicit drug. More than 94 million Americans (40% of the U.S. population) have tried it at least once, according to the 2003 National Survey on Drug Use and Health.

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# Herald Sun

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## Bongs linked to tuberculosis by researchers

- From: AAP
- April 01, 2011 12:52PM

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**PEOPLE who share bongs to smoke marijuana may be at risk of contracting pulmonary tuberculosis, Australian medical researchers say.**

Research to be presented at the Thoracic Society of Australia and New Zealand conference in Perth on Monday suggests a link between active TB cases and shared bongs - water pipes commonly used in marijuana smoking.

Dr Michael Hayes and Dr Susan Miles from the Department of General Medicine at Calvary Mater Hospital in Newcastle conducted the research, centred on three recent TB cases in the Hunter-New England area of NSW.

Dr Hayes said the three young patients were regular or heavy cannabis users and more recently a fourth person in the region with similar characteristics had been diagnosed with TB.

TB is caused by the bacteria *Mycobacterium tuberculosis*, which can be contracted by breathing in air droplets coughed from an infected person.

In Australia, about 1000 people are infected with TB each year, while globally an estimated 1.7 million people die from the disease annually.

Dr Hayes, who is also a specialist in the respiratory and sleep unit at the John Hunter Hospital in NSW, said the incidence of TB in the non-indigenous Australian-born population was historically low.

He said although the three initial cases were not related, there was concern about the high rate of positive contacts among people who had shared bongs with the active cases.

Close contacts of the three patients were tested for latent TB and more than 30 showed positive results, Dr Hayes said.

If the contact had shared a bong with the active case, there was a six-fold increased risk of being positive, he said.

"Smoking marijuana is a cough-provoking activity and it is usually conducted in a confined environment that is conducive to the spread of the organism.

"While there is no conclusive proof that TB has been spread by bong smoking, there is sufficient reason to suggest an association between this activity and the spread and severity of the disease."

He said greater awareness of the issue was needed among health professionals and the general public, particularly those who may be at risk through bong smoking.

But Dr Hayes said the risk of TB was just one of the minor risks associated with marijuana use.

"The other health problems associated with long term marijuana use are quite clear and well laid out.

"It does cause lung disease and heavy use does cause psychiatric problems."

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**Marijuana And MS Treatment, Not So Smart?**

29 Mar 2011

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Medical marijuana has long been a controversial subject to the using and non-using communities and a new study has presented information that those with Multiple Sclerosis that use the sometimes legalized drug, may trade some level of pain relief for diminished thinking skills and other cognitive side effects.

Proponents of medical marijuana argue that it can be a safe and effective treatment for the symptoms of cancer, AIDS, multiple sclerosis, pain, glaucoma, epilepsy, and other conditions. They cite dozens of peer-reviewed studies, prominent medical organizations, major government reports, and the use of marijuana as medicine throughout world history.

Opponents of medical marijuana argue that it is too dangerous to use, lacks FDA-approval, and that various legal drugs make marijuana use unnecessary. They say marijuana is addictive, leads to harder drug use, interferes with fertility, impairs driving ability, and injures the lungs, immune system, and brain.

Some clinical trials have reported a mild benefit of marijuana on pain, bladder dysfunction and spasticity in MS, an auto-immune disease that affects the brain and spinal cord.

In the study, cannabis users performed significantly more poorly than nonusers on measures of information processing speed, working memory, executive functions, and visuospatial perception. They were also twice as likely as nonusers to be classified as globally cognitively impaired.

In 1972, the US Congress placed marijuana in Schedule I of the Controlled Substances Act because they considered it to have "no accepted medical use." Since then, 15 of 50 US states and DC have legalized the medical use of marijuana.

On average, the duration of marijuana use was 26 years in the research. A total of 72% of users reported smoking marijuana on a daily basis while 24% reported weekly use and one person reported bi-weekly use.

The research found that people who used marijuana performed significantly worse with respect to attention, speed of thinking, executive function and visual perception of spatial relationships between objects. For example, on a sensitive test of information processing speed, those using marijuana scored approximately one third lower than non-users. Those who used marijuana were also twice as likely as non-users to be classified as globally cognitively impaired, defined as impairment on two or more aspects of intellectual functioning.

Anthony Feinstein, MPhil, MD, PhD, with Sunnybrook Health Services Center and the University of Toronto in Ontario, Canada stated: